



Welcome to UMAM 201

Uniform Mitigation Assessment Method Training

District staff participating in today's training:

**Anita Bain- Environmental Resource Permitting
Division Director, West Palm Beach**

**Laura Layman- Environmental Supervisor, Lower
West Coast Service Center**

**Barb Conmy- Environmental Supervisor, Section
Leader, West Palm Beach**

**Mindy Parrott, Environmental Supervisor, Martin-
St. Lucie Service Center**

**Marc Ady, Environmental Supervisor, Orlando
Service Center**



District staff participating in today's training (cont'd):

- **Environmental Analyst review staff in Fort Myers:**
- **Jewelene Harris, Scientist IV**
- **Julie Arrison, Scientist III**
- **John Policarpo, Scientist III**
- **Holly Bauer-Windhorst, Scientist III**
- **Karyn Allman, Scientist II**
- **Justin Hojnacki, Scientist I**



Goals of today's training exercise:

- To provide an opportunity for exchange of knowledge about the UMAM rule and how it is applied
- To provide an opportunity for feedback and greater consistency in scoring
- To identify other aspects of UMAM needing further discussion



Background Information

- Legislature mandated a method to measure “No Net Loss of Wetland Function”
- UMAM implemented 2/2/04
- Replaces mitigation ratios and WRAP; other rules unchanged
- Effective statewide for FDEP, WMDs and local governments
- Part I establishes *Frame of Reference*; Part II evaluates functions according to *Frame of Reference*



Part I- Qualitative Characterization

- Ch 62-345.400(1): An assessment area must be described with sufficient detail to provide a frame of reference for the type of community being evaluated and to identify the functions that will be evaluated



Part I- Qualitative Characterization







The reference wetland type is identified upfront:



- Melaleuca forest with a wet prairie groundcover?
- Or wet prairie community that has been invaded by Melaleuca?

Reference Wetland Types (Samples)



BASIN WETLANDS						
<p><i>Shallow, closed basin with outlet usually only in time of high water; peat or sand substrate, usually inundated; wetland woody and/or herbaceous vegetation</i></p>						
<p>TOPICS: Dominant Vegetation Strata Formation Typical Vegetation Typical Animals Soils Hydroperiod Effects of Deviation from Normal Hydroperiod Fire Typical Surrounding Habitats Habitats with Similar Flora/Fauna Threats Importance </p>						
Natural Communities:	Basin Marsh	Basin Swamp	Bog	Coastal Swale	Depression Marsh	Dome Swamp
	NW, NE, C, SW, SE, S, Keys	NW, NE, C, SW, SE, S, Keys	NW, NE, C, SW, SE, S, Keys	NW, NE, C, SW, SE, S, Keys	NW, NE, C, SW, SE, S, Keys	NW, NE, C, SW, SE, S, Keys
						
Dominant Veg Strata	Herbaceous Shrubby	Shrubby Forested	Herbaceous Forested	Herbaceous	Herbaceous	Forested
Formation	Large solution depression or shallow lakes that have filled with sediment	Large, irregular shape. Developed from oxbows of former rivers or in ancient coastal swale lagoons. Also karst topography may produce basin swamps.	Deep peat substrate. Moisture held by sphagnum mosses	Long narrow depression wetlands in sand/peat-sand substrate formed in interdunal depressions	Shallow, circular. Typical in karst areas where sand has filled a sinkhole. Water input from rainfall, runoff or seepage from uplands	Shallow, circular. Develop in sandy flatwoods and karst areas.
Typical Vegetation	Sawgrass, cattail, common reed, panicum, cutgrass, southern watergrass, pennywort, Spanish needle, redroot, soft rush, American lotus, water primrose, arrowhead, coastal plain willow, saltbush, elderberry, spikerush, knotweed, buttonbush, and dog fennel	Dominant plants include blackgum, cypress, and slash pine. Other typical plants include red maple, swamp redbay, sweetbay magnolia, loblolly bay, Virginia willow, fetterbush, laurel greenbrier, Spanish moss, wax myrtle, titi, sphagnum moss, and buttonbush	Sphagnum moss and dense evergreen forests or shrub thickets of hydrophytic species or by marshy prairie with or without woody species. Typical plant species include titi, sphagnum moss, dahoon holly, fetterbush, large gallberry, loblolly bay, redbay, and sweetbay	Graminoids and mixed wetland forbs	Maidencane, fire flag, pickerelweed, St. John's wort, spikerush, yellow-eyed grass, chain fern, willows, wax myrtle, swamp primrose, bloodroot, buttonbush, arrowheads, and bladderwort. Vegetation generally in concentric bands.	Pond cypress, swamp tupelo, slash pine, dahoon holly, red maple, blackgum, swamp bay, sweetbay, loblolly bay, pond apple, Virginia willow, fetterbush, chain fern, poison ivy, royal fern, orchids, laurel, fire flag, greenbrier, Spanish moss, cinnamon fern, wax myrtle, willow, maidencane, swamp titi, St. John's wort, lizard's tail, sawgrass, swamp primrose, redroot, sphagnum moss, arum, water hyssop, buttonbush. Often tallest in center.
Typical Animals	Two-toed amphiuma, lesser siren, greater siren, cricket frog, pig frog, bull frog, green treefrog, leopard frog, alligator, eastern mud snake, green water snake, banded water snake, black swamp snake, striped swamp snake, bald eagle, great blue heron, great egret, snowy egret, little blue heron, northern harrier, tricolored heron	Southern dusky salamander, cricket frog, little grass frog, chicken turtle, striped mud turtle, ringneck snake, scarlet kingsnake, crayfish snake, cottonmouth, wood duck, hawks, turkey, great horned owl, barred owl, pileated woodpecker, songbirds, gray squirrel, black bear, raccoon, mink, river otter, bobcat, and white-tailed deer	Dwarf salamander, squirrel treefrog, little grass frog, banded water snake, and cottonmouth	Flatwoods salamander, mole salamander, tiger salamander, dwarf salamander, striped newt, oak toad, cricket frog, pinewoods treefrog, barking treefrog, squirrel treefrog, little grass frog, southern chorus frog, ornate chorus frog, narrowmouth toad, white ibis, eastern spadefoot toad, gopher frog, wood stork, and sandhill crane	Flatwoods salamander, mole salamander, oak toad, dwarf salamander, southern cricket frog, pinewoods treefrog, little grass frog, alligator, narrowmouth toad, snapping turtle, mud turtles, eastern mud snake, cottonmouth, wood duck, woodstork, swallow-tailed kite, barred owl, pileated woodpecker, great-crowned flycatcher, prothonotary warbler, and rusty blackbird	
Soils	Variable, from sand with a thin build up of acidic/peaty soils to deeper muck soils.	Acidic, nutrient poor peat. Often underlain by clay lens or other impervious layer	Acidic peat accumulated in a depression either by filling in or floating into place	Sand/peat-sand substrate	Usually acid sand with deepening peat towards center. May have underlying	Peat, thickest towards center. Underlain w/ acidic sands, then

UMAM Part 1 Form: Setting the Stage



PART I – Qualitative Description (See Section 62-345.400, F.A.C.)			
Site/Project Name		Application Number	Assessment Area Name or Number
FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands			
Assessment area description			
Significant nearby features		Uniqueness (considering the relative rarity in relation to the regional landscape.)	
Functions		Mitigation for previous permit/other historic use	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found.)		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)	
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):			
Additional relevant factors:			
Assessment conducted by:		Assessment date(s):	

Form 62-345.900(1), F.A.C. [effective date 02-04-2004]

Part 1: continued

- Part I characterization drives Part II evaluation
- Lumping versus splitting assessment areas
- Degraded system: use underlying natural system as frame of reference
- Altered system: use natural system it most closely resembles currently (hydric pasture, for example)



UMAM Part II: Scoring Losses and Gains

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Impact or Mitigation	Assessment conducted by:	Assessment date:

Scoring Guidance	Optimal (10)	Moderate (7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support				
<input type="checkbox"/> w/o pres or current <input type="checkbox"/> with				
.500(6)(b) Water Environment (n/a for uplands)				
<input type="checkbox"/> w/o pres or current <input type="checkbox"/> with				
.500(6)(c) Community structure				
<input type="checkbox"/> w/o pres or current <input type="checkbox"/> with				
Score = sum of above scores/30 (if uplands, divide by 20) <input type="checkbox"/> current <input type="checkbox"/> w/o pres <input type="checkbox"/> with	If preservation as mitigation, Preservation adjustment factor = Adjusted mitigation delta =	For impact assessment areas FL = delta x .600 =		
Delta = [with-current] <input type="checkbox"/>	If mitigation Time lag (t-factor) = Risk factor =	For mitigation assessment areas RFG = delta/(t-factor x risk) =		

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

Scoring UMAM Part II...

There are three sections for scoring each assessment area quantitatively:

- Location and Landscape Support
- Water Environment
- Community Structure

...and a final section that is the overall score of the assessment area as well as adjustments to scoring *mitigation* areas based on preservation vs. mitigation, time lag, and risk factors.

UMAM Part II: Quantitative Assessment

Each impact assessment area and each mitigation assessment area must be evaluated under two conditions:

1. Current condition (or without preservation in the case of preservation mitigation)
2. b) “With impact” or “With mitigation” – These assessments are based on the reasonably expected outcomes, which may represent an increase, decrease, or no change in value relative to the current condition.



Part II: Location and Landscape Support

PART II – Quantification of Assessment Area (impact or mitigation) (See Sections 62-345.500 and .600, F.A.C.)			
Site/Project Name		Application Number	
Assessment Area Name or Number			
Impact or Mitigation		Assessment conducted by:	
		Assessment date:	
Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed		Optimal (10) Condition is optimal and fully supports wetland/surface water functions	Moderate (7) Condition is less than optimal, but sufficient to maintain most wetland/surface water functions
		Minimal (4) Minimal level of support of wetland/surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
.500(6)(a) Location and Landscape Support w/o pres or current <input type="checkbox"/> with <input type="checkbox"/>			
.500(6)(b) Water Environment (n/a for uplands) w/o pres or current <input type="checkbox"/> with <input type="checkbox"/>			
.500(6)(c) Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current <input type="checkbox"/> with <input type="checkbox"/>			
Score = sum of above scores/30 (if uplands, divide by 20) current or w/o pres <input type="checkbox"/> with <input type="checkbox"/>		If preservation as mitigation, Preservation adjustment factor = Adjusted mitigation delta =	For impact assessment areas FL = delta x acres =
Delta = [with-current] <input type="checkbox"/>		If mitigation Time lag (t-factor) = Risk factor =	For mitigation assessment areas RFG = delta/(t-factor x risk) =

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

- Support to wildlife by outside habitats
- Invasive exotics or other invasive plant species in proximity of the assessment area
- Wildlife access to and from outside – distance and barriers
- Functions that benefit fish and wildlife downstream – distance or barriers
- Impacts of land uses outside assessment area to fish and wildlife
- Benefits to downstream or other hydrologically connected areas
- Benefits to downstream habitats from discharges
- Protection of wetland functions by upland mitigation assessment areas

Part II: Water Environment

PART II – Quantification of Assessment Area (Impact or mitigation) (See Sections 62-345.500 and .600, F.A.C.)			
Site/Project Name		Application Number	
Assessment Area Name or Number			
Impact or Mitigation		Assessment conducted by:	
		Assessment date:	
Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed		Optimal (10) Condition is optimal and fully supports wetland/surface water functions	Moderate (7) Condition is less than optimal, but sufficient to maintain most wetland/surface water functions
		Minimal (4) Minimal level of support of wetland/surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
.500(6)(a) Location and Landscape Support w/o pres or current <input type="checkbox"/> with <input type="checkbox"/>			
.500(6)(b) Water Environment (n/a for uplands) w/o pres or current <input type="checkbox"/> with <input type="checkbox"/>		<div style="border: 1px solid black; border-radius: 50%; padding: 10px; text-align: center;"> <p>Twelve attributes are considered to generate the score for Water Environment</p> </div>	
.500(6)(c) Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current <input type="checkbox"/> with <input type="checkbox"/>			
Score = sum of above scores/30 (if uplands, divide by 20) current <input type="checkbox"/> or w/o pres <input type="checkbox"/> with <input type="checkbox"/>		If preservation as mitigation, Preservation adjustment factor = Adjusted mitigation delta =	For impact assessment areas FL = delta x acres =
Delta = [with-current] <input type="checkbox"/>		If mitigation Time lag (t-factor) = Risk factor =	For mitigation assessment areas RFG = delta/(t-factor x risk) =

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]


- Water levels and flows
- Water level indicators
- Soil moisture
- Soil erosion or deposition
- Evidence of fire history
- Vegetation - community zonation
- Vegetation – hydrologic stress
- Use by animal species with specific hydrological requirements
- Plant community composition – species tolerant of and associated with water quality degradation or flow alteration
- Direct observation of standing water
- Existing water quality data
- Water depth, wave energy, currents and light penetration

Part II: Community Structure

PART II – Quantification of Assessment Area (impact or mitigation) (See Sections 62-345.500 and .600, F.A.C.)				
Site/Project Name		Application Number		Assessment Area Name or Number
Impact or Mitigation		Assessment conducted by:		Assessment date:
Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10) Condition is optimal and fully supports wetland/surface water functions	Moderate (7) Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal (4) Minimal level of support of wetland/surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
.500(6)(a) Location and Landscape Support w/o pres or current <input type="checkbox"/> with <input type="checkbox"/>				
.500(6)(b) Water Environment (n/a for uplands) w/o pres or current <input type="checkbox"/> with <input type="checkbox"/>				
.500(6)(c) Community Structure 1. Vegetation and/or 2. Benthic Community w/o pres or current <input type="checkbox"/> with <input type="checkbox"/>				
<div style="border: 2px solid black; border-radius: 50%; padding: 10px; text-align: center;"> <p>Ten attributes are considered to generate the score for “Community Structure”</p> </div>				
Score = sum of above scores/30 (if uplands, divide by 20) current or w/o pres <input type="checkbox"/> with <input type="checkbox"/>		If preservation as mitigation, Preservation adjustment factor = Adjusted mitigation delta =		For impact assessment areas FL = delta x acres =
Delta = [with-current] <input type="checkbox"/>		If mitigation Time lag (t-factor) = Risk factor =		For mitigation assessment areas RFG = delta/(t-factor x risk) =
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- Plant species in the canopy, shrub, or ground stratum
- Invasive exotics or other invasive plant species
- Regeneration & recruitment
- Age & size distribution
- Density and quality of coarse woody debris, snag, den, and cavity
- Plant condition
- Land management practices
- Topographic features such as refugia ponds, creek channels, flats or hummocks
- Siltation or algal growth in submerged aquatic plant communities
- Upland mitigation area - level of habitat and support for fish and wildlife in the associated wetlands or surface waters

Part II: Basic Terms

- 
- Functional Loss (FL)
 - Relative Functional Gain (RFG)
 - Functional Gain (FG)
 - Preservation Adjustment Factor (PAF)
 - Time Lag
 - Risk

-Today's focus is on scoring; not the mitigation calculations

Preservation

- **Raw Score: with – without preservation**
- **Adjusted Mitigation Delta: Preservation Adjustment Factor (PAF), time lag and risk only if appropriate**
- **Lift generated only considers protection from *unregulated* impacts**
- **Preservation versus enhancement**




Preservation Lift

- **Wetlands: (Preservation/Management)**
- (Degradation/Neglect)
- **Uplands: (Supporting Wetland Habitat)**
– (Development up to Buffer)
- **Mosaic: (Intact corridors/habitat support) – (Fragmented habitat)**
- **Specific applicability depends on site and mitigation plan**
- **Upland preservation versus upland enhancement (not all uplands start with a zero)**



Preservation Adjustment Factor

- 
- Management for natural ecological conditions
 - Relationship between terrestrial, aquatic, wetland communities
 - Scarcity; use by listed species
 - Proximity/support to significant ecological preserves
 - Development pressure (extent/likelihood of impacts if not protected)
 - Not an average of these parameters; some may be weighted more heavily than others

Time Lag

SFWMD

Time: How long between functional loss (impacts) and with-mitigation value?

TABLE 1.

Year	T-factor
< or = 1	1
2	1.03
3	1.07
4	1.10
5	1.14
6 – 10	1.25
11 – 15	1.46
16 – 20	1.68
21 – 25	1.92
26 – 30	2.18
31 – 35	2.45
36 – 40	2.73
41 – 45	3.03
46 – 50	3.34
51 – 55	3.65
>55	3.91



Time Lag

- Different than “mitigation success” or compliance with permit
- Forested: may be significant lag
- Consider type of impact vs. mitigation plan
- Time lag affected by soils, grading, planting plan (size and spacing), exotic removal methods, nutrient cycling, succession, etc.
- Impacts to previous mitigation sites



Risk

SFWMD

- **Risk: What is likelihood and severity of potentially not achieving with-mitigation value?**
- **Uncertainty related to:**
 - hydrologic conditions
 - establishing plant communities
 - colonization of exotic/nuisance species
 - water quality
 - potential direct/secondary impacts



Risk

SFWMD

- Common risk score ranges (based on permitting experience to-date):
- Preservation: 1-1.25
- Enhancement: 1.25-1.75
- Restoration: 1.75-2.5
- Creation: 2.0-2.5
- Risk score of 3- “extremely low likelihood of success”



UMAM- Common Items of Discussion

- 
- Discrepancies in Part I
 - Time Lag and Risk scores, particularly for enhancement of heavily degraded forested systems
 - Lift generated by upland preservation/enhancement
 - Variability in location scores
 - Viable post-mitigation scores
 - Secondary Impacts

The Future

- **Additional UMAM trainings planned at SFWMD in other service centers**
- **SFWMD mobilizing to update mitigation success criteria to be more specific to habitat types/reference wetlands**



UMAM 201

SFWMD

QUESTIONS?

